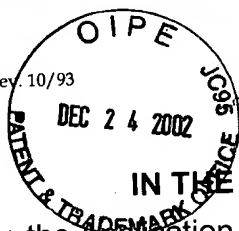


Rev. 10/93



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the Application of:

JOAN T. ODELL ET AL.

CASE NO.: BB1095

APPLICATION NO.: 09/462,972

GROUP ART UNIT: UNKNOWN

I.A. FILING DATE: 7 JULY 1998

EXAMINER: UNKNOWN

FOR: PLANT SUG1 HOMOLOGS

STATEMENT UNDER 37 CFR 1.821(g) and 1.825(b)

Commissioner for Patents
Box Sequence
P.O. Box 2327
Arlington, VA 22202

Attention: Kaya L Lewis Baltimore

The submission of the substitute Sequence Listing filed concurrently herewith does not include new matter.

The copy of the substitute Sequence Listing in computer readable form filed concurrently herewith is the same as the paper copy of the substitute Sequence Listing filed concurrently herewith.

Respectfully submitted,

J. KENNETH JOUNG
Attorney For Applicants
Registration No. 41,881
Telephone: 302-992-4929
Facsimile: 302-892-1026

Dated: 20 December 2002



SEQUENCE LISTING

<110> E. I. DUPONT DE NEMOURS AND COMPANY
Odell, Joan T
Allen, Stephen M

<120> PLANT SUG1 HOMOLOGS

<130> BB-1095-A

<140> US 09/462,972

<141> 2000-01-14

<150> PCT/US98/13992

<151> 1998-07-07

<150> US 08/893,401

<151> 1997-07-11

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His Tyr Tyr Ser Leu Asn Ile His Glu His Gln Leu Leu Leu Arg Gln
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aag act cat aac ctc aac cgt ctc gag gct cag aga aac gac ctc aat 192
Lys Thr His Asn Leu Asn Arg Leu Glu Ala Gln Arg Asn Asp Leu Asn
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85 90 95

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 385 390 395 400

aag gtg atg aaa aag gag act gaa aaa aac atg tca ttg cgg aag ttg 1248
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Lys Thr His Asn Leu Asn Arg Leu Glu Ala Gln Arg Asn Asp Leu Asn
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Ser Arg Val Arg Met Leu Arg Glu Glu Leu Gln Leu Leu Gln Glu Pro
 65 70 75 80

Gly Ser Tyr Val Gly Glu Val Val Lys Val Met Gly Lys Asn Lys Val
 85 90 95

Leu Val Lys Val His Pro Glu Gly Lys Tyr Val Val Asp Ile Asp Lys
 100 105 110

Asn Ile Asp Ile Thr Lys Ile Thr Pro Ser Thr Arg Val Ala Leu Arg
115 120 125

Asn Asp Ser Tyr Val Leu His Leu Val Leu Pro Ser Lys Val Asp Pro
130 135 140

Leu Val Asn Leu Met Lys Val Glu Lys Val Pro Asp Ser Thr Tyr Asp
145 150 155 160

Met Ile Gly Gly Leu Asp Gln Gln Ile Lys Glu Ile Lys Glu Val Ile
165 170 175

Glu Leu Pro Ile Lys His Pro Glu Leu Phe Glu Ser Leu Gly Ile Ala
180 185 190

Gln Pro Lys Gly Val Leu Leu Tyr Gly Pro Pro Gly Thr Gly Lys Thr
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210 215 220

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225 230 235 240

Met Val Arg Glu Leu Phe Val Met Ala Arg Glu His Ala Pro Ser Ile
245 250 255

Ile Phe Met Asp Glu Ile Asp Ser Ile Gly Ser Ala Arg Met Glu Ser
260 265 270

Gly Ser Gly Asn Gly Asp Ser Glu Val Gln Arg Thr Met Leu Glu Leu
275 280 285

Leu Asn Gln Leu Asp Gly Phe Glu Ala Ser Asn Lys Ile Lys Val Leu
290 295 300

Met Ala Thr Asn Arg Ile Asp Ile Leu Asp Gln Ala Leu Leu Arg Pro
305 310 315 320

Gly Arg Ile Asp Arg Lys Ile Glu Phe Pro Thr Pro Asn Glu Glu Ser
325 330 335

Arg Leu Asp Ile Leu Lys Ile His Ser Arg Arg Met Asn Leu Met Arg
340 345 350

Gly Ile Asp Leu Lys Lys Ile Ala Glu Lys Met Asn Gly Ala Ser Gly
 355 360 365

Ala Glu Leu Lys Ala Val Cys Thr Glu Ala Gly Met Phe Ala Leu Arg
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Asn Leu Asn Arg Leu Glu Ala Gln Arg Asn Asp Leu Asn Ser Arg Val	
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Arg Met Leu Arg Glu Glu Leu Gln Leu Leu Gln Glu Pro Gly Ser Tyr	
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Val Gly Glu Val Val Lys Val Met Gly Lys Ser Lys Val Leu Val Lys	
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Ile Thr Lys Ile Thr Pro Ser Thr Arg Val Ala Leu Arg Asn Asp Ser	
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Tyr Met Leu His Leu Ile Leu Pro Ser Lys Val Asp Pro Leu Val Asn	
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 35 40 45

Gly Glu Val Val Lys Val Met Gly Lys Ser Lys Val Leu Val Lys Val
 50 55 60

His Pro Glu Gly Lys Tyr Val Val Asp Ile Asp Lys Ser Ile Asp Ile
 65 70 75 80

Thr Lys Ile Thr Pro Ser Thr Arg Val Ala Leu Arg Asn Asp Ser Tyr
 85 90 95

Met Leu His Leu Ile Leu Pro Ser Lys Val Asp Pro Leu Val Asn Leu
 100 105 110

Met Lys Val Glu Lys Val Pro Asp Ser Thr Tyr Asp Met Ile Gly Gly
 115 120 125

Leu Asp Gln Gln Ile Lys Glu Ile Lys Glu Val Ile Glu Leu Pro Ile
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Lys His Pro Glu Leu Phe Glu Ser Leu Gly Ile Ala Gln Pro Lys Gly
 145 150 155 160

Val Leu Leu Tyr Gly Pro Pro Gly Thr Gly Lys Thr Leu Leu Ala Arg
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 180 185 190

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 195 200 205

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 210 215 220

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 225 230 235 240

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 245 250 255

Asp Gly Phe Glu Ala Ser Asn Lys Ile Lys Val Leu Met Ala Thr Asn
 260 265 270

Arg Ile Asp Ile Leu Asp Gln Ala Leu Leu Arg Pro Gly Arg Ile Asp
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 325 330 335

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Gln Ile Arg Gln Lys Thr His Asn Leu Asn Arg Leu Glu Ala Gln Arg
 50 55 60

Asn Asp Leu Asn Ser Arg Val Arg Met Leu Arg Glu Glu Leu Gln Leu
 65 70 75 80

Leu Gln Glu Pro Gly Ser Tyr Val Gly Glu Val Val Lys Val Met Gly
 85 90 95

Lys Ser Lys Val Leu Val Lys Val His Pro Glu Gly Lys Tyr Val Val
 100 105 110

Asp Ile Asp Lys Ser Ile Asp Ile Thr Lys Ile Thr Pro Ser Thr Arg
 115 120 125

Val Ala Leu Arg Asn Asp Ser Tyr Met Leu His Leu Ile Leu Pro Ser
 130 135 140

Lys Val Asp Pro Leu Val Asn Leu Met Lys Val Glu Lys Val Pro Asp
 145 150 155 160

Ser Thr Tyr Asp Met Ile Gly Gly Leu Asp Gln Gln Ile Lys Glu Ile
 165 170 175

Lys Glu Val Ile Glu Leu Pro Ile Lys His Pro Glu Leu Phe Glu Ser
 180 185 190

Leu Gly Ile Ala Gln Pro Lys Gly Val Leu Leu Tyr Gly Pro Pro Gly
 195 200 205

Thr Gly Lys Thr Leu Leu Ala Arg Ala Val Ala His His Thr Asp Cys
 210 215 220

Thr Phe Ile Arg Val Ser Gly Ser Glu Leu Val Gln Lys Tyr Ile Gly
 225 230 235 240

Glu Gly Ser Arg Met Val Arg Glu Leu Phe Val Met Ala Arg Glu His
 245 250 255

Ala Pro Ser Ile Ile Phe Met Asp Glu Ile Asp Ser Ile Gly Ser Ala
260 265 270

Arg Met Glu Ser Gly Thr Gly Asn Gly Asp Ser Glu Val Gln Arg Thr
275 280 285

Met Leu Glu Leu Leu Asn Gln Leu Asp Gly Phe Glu Ala Ser Asn Lys
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Ile Lys Val Leu Met Ala Thr Asn Arg Ile Asp Ile Leu Asp Gln Ala
305 310 315 320

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325 330 335

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340 345 350

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Gly Ala Ser Gly Ala Glu Leu Lys Ala Val Cys Thr Glu Ala Gly Met
370 375 380

Phe Ala Leu Arg Glu Arg Arg Val His Val Thr Gln Glu Asp Phe Glu
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Val Asp Val Asp Lys Asn Ile Asp Ile Asn Asp Val Thr Pro Asn Cys
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Arg Val Ala Leu Arg Asn Asp Ser Tyr Thr Leu His Lys Ile Leu Pro
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Asp Ser Thr Tyr Glu Met Ile Gly Gly Leu Asp Lys Gln Ile Lys Glu
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His Ala Pro Ser Ile Ile Phe Met Asp Glu Ile Asp Ser Ile Gly Ser
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Ser Arg Leu Glu Gly Gly Ser Gly Gly Asp Ser Glu Val Gln Arg Thr
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100 105 110

Val Cys Leu Arg Ser Asp Ser Tyr Met Leu His Lys Val Leu Glu Asn
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Ser Thr Tyr Asp Met Val Gly Gly Leu Thr Lys Gln Ile Lys Glu Ile
145 150 155 160

Lys Glu Val Ile Glu Leu Pro Val Lys His Pro Glu Leu Phe Glu Ser
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Leu Gly Ile Ala Gln Pro Lys Gly Val Ile Leu Tyr Gly Pro Pro Gly
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260 265 270

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 <213> Homo sapiens

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Leu Ile Val Asn Asp Lys Ser Gln Asn Leu Arg Arg Leu Gln Ala Gln
 35 40 45

Arg Asn Glu Leu Asn Ala Lys Val Arg Leu Leu Arg Glu Glu Leu Gln
 50 55 60

Leu Leu Gln Glu Gln Gly Ser Tyr Val Gly Glu Val Val Arg Ala Met
 65 70 75 80

Asp Lys Lys Lys Val Leu Val Lys Val His Pro Glu Gly Lys Phe Val
 85 90 95

Val Asp Val Asp Lys Asn Ile Asp Ile Asn Asp Val Thr Pro Asn Cys
 100 105 110

Arg Val Ala Leu Arg Asn Asp Ser Tyr Thr Leu His Lys Ile Leu Pro
 115 120 125

Asn Lys Val Asp Pro Leu Val Ser Leu Met Met Val Glu Lys Val Pro
 130 135 140

Asp Ser Thr Tyr Glu Met Ile Gly Gly Leu Asp Lys Gln Ile Lys Glu
 145 150 155 160

Ile Lys Glu Val Ile Glu Leu Pro Val Lys His Pro Glu Leu Phe Glu
 165 170 175

Ala Leu Gly Ile Ala Gln Pro Lys Gly Val Leu Leu Tyr Gly Pro Pro
 180 185 190

Gly Thr Gly Lys Thr Leu Leu Ala Arg Ala Val Ala His His Thr Asp
 195 200 205

Cys Thr Phe Ile Arg Val Ser Gly Ser Glu Leu Val Gln Lys Phe Ile
 210 215 220

Gly Glu Gly Ala Arg Met Val Arg Glu Leu Phe Val Met Ala Arg Glu
 225 230 235 240

His Ala Pro Ser Ile Ile Phe Met Asp Glu Ile Asp Ser Ile Gly Ser
 245 250 255

Ser Arg Leu Glu Gly Gly Ser Gly Gly Ser Ser Glu Val Gln Arg Gln
 260 265 270

Met Leu Glu Leu Leu Asn Gln Leu Asp Gly Phe Glu Ala Thr Lys Asn
 275 280 285

Ile Lys Val Ile Met Ala Thr Asn Arg Ile Asp Met Leu Asp Ser Ala
 290 295 300

Leu Leu Arg Pro Gly Arg Ile Asp Arg Lys Ile Glu Phe Pro Pro Pro
 305 310 315 320

Asn Glu Glu Ala Arg Leu Asp Ile Leu Lys Ile His Ser Arg Lys Met
 325 330 335

Asn Leu Thr Arg Gly Ile Asn Leu Arg Lys Ile Ala Glu Leu Met Pro
 340 345 350

Gly Ala Ser Gly Ala Glu Val Lys Gly Val Cys Thr Glu Ala Gly Met
 355 360 365

Tyr Ala Leu Arg Glu Arg Arg Val His Val Thr Gln Glu Asp Phe Glu
 370 375 380

Met Ala Val Ala Lys Val Met Gln Lys Asp Ser Glu Lys Asn Met Ser
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Ile Lys Lys Leu Trp Lys
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 <212> PRT
 <213> Homo sapiens

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Leu Ile Val Asn Asp Lys Ser Gln Asn Leu Arg Arg Leu Gln Ala Gln
 35 40 45

Arg Asn Glu Leu Asn Ala Lys Val Arg Leu Leu Arg Arg Glu Leu Gln
 50 55 60

Leu Leu Gln Glu Gln Gly Ser Tyr Val Gly Glu Val Val Arg Ala Met
 65 70 75 80

Asp Lys Lys Lys Val Leu Val Lys Val His Pro Glu Gly Lys Phe Val
 85 90 95

Val Asp Val Asp Lys Asn Ile Asp Ile Asn Asp Val Thr Pro Asn Cys
 100 105 110

Arg Val Ala Leu Arg Asn Asp Ser Tyr Thr Leu His Lys Ile Leu Pro
 115 120 125

Asn Lys Val Asp Pro Leu Val Ser Leu Met Met Val Glu Lys Val Pro
 130 135 140

Asp Ser Thr Tyr Glu Met Ile Gly Gly Leu Asp Lys Gln Ile Lys Glu
 145 150 155 160

Ile Lys Glu Val Ile Glu Leu Pro Val Lys His Pro Glu Leu Phe Glu
 165 170 175

Ala Leu Gly Ile Ala Gln Pro Lys Gly Val Leu Leu Tyr Gly Pro Pro
 180 185 190

Gly Thr Gly Lys Thr Leu Leu Ala Arg Ala Val Ala His His Thr Asp
 195 200 205

Cys Thr Phe Ile Arg Val Ser Gly Ser Glu Leu Val Gln Lys Phe Ile
 210 215 220

Gly Glu Gly Ala Arg Met Val Arg Glu Leu Phe Val Met Ala Arg Glu
 225 230 235 240

His Ala Pro Ser Ile Ile Phe Met Asp Glu Ile Asp Ser Ile Gly Ser
 245 250 255

Ser Arg Leu Glu Gly Gly Ser Gly Gly Asp Ser Glu Val Gln Arg Thr
 260 265 270

Met Leu Glu Leu Leu Asn Gln Leu Asp Gly Phe Glu Ala Thr Lys Asn
 275 280 285

Ile Lys Val Ile Met Ala Thr Asn Arg Ile Asp Ile Leu Asp Ser Ala
 290 295 300

Leu Leu Arg Pro Gly Arg Ile Asp Arg Lys Ile Glu Phe Pro Pro Pro
 305 310 315 320

Asn Glu Glu Ala Arg Leu Asp Ile Leu Lys Ile His Ser Arg Lys Met
 325 330 335

Asn Leu Thr Arg Gly Ile Asn Leu Arg Lys Ile Ala Glu Leu Met Pro
 340 345 350

Gly Ala Ser Gly Ala Glu Val Lys Gly Val Cys Thr Glu Ala Gly Met
 355 360 365

Tyr Ala Leu Arg Glu Arg Arg Val His Val Thr Gln Glu Asp Phe Glu
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Met Ala Val Ala Lys Val Met Gln Lys Asp Ser Glu Lys Asn Met Ser
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Ile Lys Lys Leu Trp Lys
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 gogagggggt ggggcagtac tacctgcagc acatccacga cctgcagctc cagatccggc 180
 ataagaccca caacctcaac cgtctcgagg ccagcgcaa tgacctcaac tcccgagtta 240
 gaatgctcag ggaagattgc anttgettca ngagcctggc tcatatgttg gtnaggtggt 300
 gaaggcatgg ggaaatcaaa ggttctgggt naaggtaaac cccgaaggca aatannttgt 360
 tgatataaat aanccattga ttncangtt nacacctnca acaanancgc cttcgaantg 420
 atacnanngc ccattctgtt taccaccaa ttnncattgg caaccccatg aanttaaaag 480
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Gly Asp Glu Ala Ala Ala Ala Ala Lys Gly Arg Ser Gly Gly Gly Gly
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Glu Gly Leu Arg Gln Tyr Tyr Leu Gln His Ile His Asp Leu Gln Leu
35 40 45

Gln Ile Arg His Lys Thr His Asn Leu Asn Arg Leu Glu Ala Gln Arg
50 55 60

Asn Asp Leu Asn Ser Arg Val Arg Met Leu Arg Glu Asp Xaa Xaa Leu
65 70 75 80

Leu Xaa Glu Pro Gly Ser Tyr Val Gly Xaa Val Val Lys Ala Trp Gly
85 90 95

Asn Gln Arg Phe Trp Val Lys Val Asn Pro Glu Gly Lys Xaa Xaa Val
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Asp Ile Asn
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	atgggttcgtg aactatttgt gatggccana gagcatgcac catccataat ctttatggat	180
	gaaatagact ccattggatc tgctanaatg cagtcangat ctgggggtgg tgatagttag	240
	gttcaacgca ctatgcttga tcttctgaat caacttgatg gctttgaagc atcaaacana	300
	attaaggtct tatggcgaca aatangatgg atattttgga tcaagctctc tgangcctgg	360
	tcgcattgat aggaagatga atttccaatc cgaatgaaga tccgcttgat anttgaagat	420
	cattcaagaa aaatgactga tctggattgt ctgaaaagat gcagagaaat gatgggcnct	480
	ggacaaacta agngtctnac gaacaagatt tgcctccaaa naggtattca cagagatcta	540
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Cys Thr Phe Xaa Arg Val Ser Gly Ser Glu Leu Val Gln Lys Tyr Ile
20 25 30

Gly Glu Gly Ser Arg Met Val Arg Glu Leu Phe Val Met Ala Xaa Glu
35 40 45

His Ala Pro Ser Ile Ile Phe Met Asp Glu Ile Asp Ser Ile Gly Ser
50 55 60

Ala Xaa Met Gln Ser Xaa Ser Gly Gly Gly Asp Ser Glu Val Gln Arg
65 70 75 80

Thr Met Leu Asp Leu Leu Asn Gln Leu Asp Gly Phe Glu Ala Ser Asn
85 90 95

Xaa Ile Lys Val Xaa Met Ala Thr Asn Xaa Met Asp Ile Leu Asp Gln
100 105 110

Ala Leu Xaa Xaa Pro Gly Arg Ile Asp Arg Lys Met Asn Phe
115 120 125